EXECUTIVE RESEARCH SUMMARY

WEED CONTROL IN PROCESSING CUCUMBERS (2017)

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TRIAL 1. WEED MANAGEMENT IN CUCUMBERS

The objective of this trial was to determine the effect of Sandea® on cucumber tolerance to the herbicide alone and in tank mix with Command®. Sandea was applied at rates of 35, 52.5 and 70 g/ha (14, 21 and 28 g/ac) alone or with 1.1 L/ha (or 0.47 L/ac) of Command®. Hand-weeded and weedy checks were included for comparison with treatments. Herbicides were applied after planting but prior to crop and weed emergence (PRE). Injury was rated on a scale of 0 to 100% at 7, 14 and 28 days after crop emergence (DAE). Cucumber marketable yield and yield by grad (from No. 1 to 5) were determined at harvest. Weed control by species was rated at 28 and 42 DAE.

Visible injury was less than 5% in all treatments. Though yield of the No. 1, 2 and 3 cucumbers in all treatments was similar to the weedfree check, yield of No. 4 and 5 cucumbers in all treatments was less than that in the weedfree check. Due to this reduction in No. 4 and 5 cucumbers, total marketable yield was less in all herbicide treatments than the weedfree check.

The reduction in cucumber yield may be attributable to lack of annual broadleaf weed control. This poor control is hypothesized to be as a result of an extended period of lack of rainfall after time of herbicide application. This lack of rainfall could have reduced activation of the herbicide, or the amount of herbicide dissolved in soil water and thus available for uptake by plant roots. In treatments where Sandea® was applied alone at a rate of 35 g/ha (or 14 g/ac), control of annual broadleaf and grass weeds ranged from 68% (common lambsquarters) to 79% (eastern black nightshade. The highest level of weed control (78% for large crabgrass to 89% for redroot pigweed) was observed in the tank mix of the high rate of Sandea® (70 g/ha or 28 g/ac) plus Command®. The range in weed control by species across the treatments is summarized below:

- Lambsquarters control ranged from 68% (Sandea® at 35 g/ha or 14 g/ac alone) to 84% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Redroot pigweed control ranged from 70% (Sandea® at 35 g/ha or 14 g/ac alone) to 89% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Common ragweed control ranged from 75% (Sandea® at 35 g/ha or 14 g/ac alone) to 85% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Velvetleaf control ranged from 76% (Sandea® at 35 g/ha or 14 g/ac alone) to 86% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Eastern black nightshade ranged from 79% (Sandea® at 35 g/ha or 14 g/ac alone) to 86% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Green foxtail control ranged from 71% (Sandea® at 35 g/ha or 14 g/ac alone) to 85% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

- Large crabgrass control ranged from 69% (Sandea® at 35 g/ha or 14 g/ac alone) to 78% (Sandea® at 70 g/ha or 28 g/ac + Command at 1.1 L/ha or 0.47 L/ac).

TRIAL 2. TOLERANCE OF CUCUMBER TO PROWL H2O AND PETHOXAMID (CHA-2735).

The purpose of this trial was to determine the tolerance of cucumber to preemergence applications of Prowl H2O and pethoxamid (CHA-2735). Pethoxamid caused substantial injury, and reductions in #2 and #3 cucumber fruit. Prowl H20 caused less than 5% injury at twice the proposed label rate, and marketable yield was not reduced.